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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,808	12/12/2003	Karlheinz Bing	BING ET AL.-5	2787

25889 7590 03/21/2006

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EXAMINER
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AFZALI, SARANG

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/734,808		BING ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Sarang Afzali		3729	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Application filed 12/12/2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12122003</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Specification***

1. The disclosure is objected to because of the following informalities:

On page 2, lines 15-16 of the specification, the prior art is disclosed as PCT Application No. PCT/DE02/02768. However, the submitted IDS (Form PTO-1449) filed on 12/12/2003 lists this same reference as WO03/025376. .

Appropriate correction is required.

***Claim Objections***

2. Claim 4 objected to because of the following informalities:

Line 3 should read - - longitudinal axes- -.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 5-6, claim 2, line 2, claim 3, line 2, and claim 4, lines 2-3, the phrases "unmachined part" and "unmachined parts" are confusing and not clear as if the first tube-shaped part and the second cylindrical part have ever been machined prior to

being assembled. Note that the tube-shaped and cylindrical parts must have been somehow machined (turning, rolling, shaping, etc.) to the right size and shape prior to being assembled together. Applicant may need to clarify as what exactly "unmachined" means and may have to specify that the joining surfaces of the two tube-shaped and cylindrical parts are in a "rough" form prior to being joined together or something to this effect instead of using a general phrase such as "unmachined".

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Holcombe (U.S. 4,364,159) in view of Wegner et al. (U.S. 5,882,585).

As applied to claim 1, Holcombe teaches a method of fitting a reinforced ring on a forged piston for an internal combustion engine, having combustion depression provided on the piston head, comprising:

shrinking (col. 6, lines 63-64) a join surface (bottom surface, Fig. 2) of a first tube-shaped unmachined part (ring 30, Fig. 2) made of oxidation-resistant steel (high nickel iron ring, col. 4, line 51-53) onto a join surface (shoulder 24, Fig. 2) of a second cylindrical unmachined part (head 12 of piston 12, Fig. 2); forging the two unmachined

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parts to produce piston blank, causing at least the combustion depression to formed from oxidation-resistant steel; and finishing the piston blank machining to produce a piston ready for installation the internal combustion engine (Fig. 3).

Holcombe teaches the claimed invention with the exception of a hot-forgeable steel as the material for the second cylindrical part of the piston head.

However, it is well known in the art to use a hot-forgeable steel as a blank material for the piston head as admitted by the applicant (page 2, line 18) and as taught by Wegner et al. in order to provide a more economical material for the steel forged piston upper parts (col. 1, line 33).

It would have been obvious to one of ordinary skill in the art at the time of invention to have provided Holcombe with a suitable material as taught by Wegner in order for a steel forged piston upper parts to be produced economically without negatively influencing the wear, corrosion and heat resistance properties (col. 1, line that second piston blank and cutting step to produce two single pistons made from one piston assembly in order to improve the productivity of the pistons (col. 1, lines 30-34).

As applied to claim 2, Holcombe teaches that the first unmachined part (ring 30) is heated to approximately 538°C to expand the ring temporarily for assembling onto the shoulder of the piston head (12, col. 2, lines 45-49). Note that heating to 538°C means that the ring is heated to 100°C to 150°C and beyond.

As applied to claim 3, Holcombe teaches the claimed invention. Note that the Applicant on page 8, lines 4-7, discloses that after the shrinking of the parts together, the connected unmachined parts can be cooled to room temperature, or can still be in

the warm state and therefore there is no criticality or advantage of one state over the other.

As applied to claim 4, Holcombe teaches that the join surfaces of the unmachined parts being are conical relative to the longitudinal axes of the unmachined parts.

### ***Conclusion***

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Welty (U.S. 2,124,360) teaches a method of making forgeable pistons for internal combustion engines wherein two different materials are shrink fitted and subsequently forged to provide an improved piston head. Note that the types of materials and heating temperatures are variably employed depending on different situations.

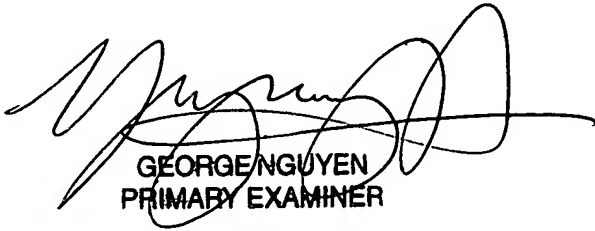
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarang Afzali whose telephone number is 571-272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.A.

S.A.  
03/16/2006



GEORGE NGUYEN  
PRIMARY EXAMINER